160th

Special Operations Aviation Regiment (A)

160TH SOAR MAINTENANCE AND LOGISTICS SYSTEMS

Purpose of Maintenance and Logistics Systems

Improve Performance of the Using Units

Facilitate High Level of Readiness / Efficiency

- *Enable 90% Mission Capable Goal by 2004*
- *Reduce Non Mission Capable Maintenance (NMCM) Time*
  - *Eliminate Unnecessary Paperwork via Paperless Logbook*
  - *Reduce Essential Paperwork via Automation*
  - *Eliminate Lost or Missing Paperwork*
  - *Eliminate Erroneous Calculations causing Inefficient Maintenance Execution*
  - *Reduce Maintenance Event Turn Around Time*
  - *Facilitate Detailed Maintenance Planning*
  - *Facilitate Efficient Scheduling of Tasks and Resources*
  - *Enable Electronic Work Task Distribution*
- *Reduce Non Mission Capable Supply (NMCS) Time*
  - *Provide Total Visibility of All Assets*
  - *Provide Better Enterprise Asset Distribution and Stock Leveling*
  - *Facilitate Better Asset Utilization through Controlled Transfers and Repairs*
  - *Reduce Request Resolution Turn Around Time*
  - *Reduce Purchase and Repair Lead Times*

Purpose of Maintenance and Logistics Systems

Ensure Compliance with Regulations, Policies and Directives

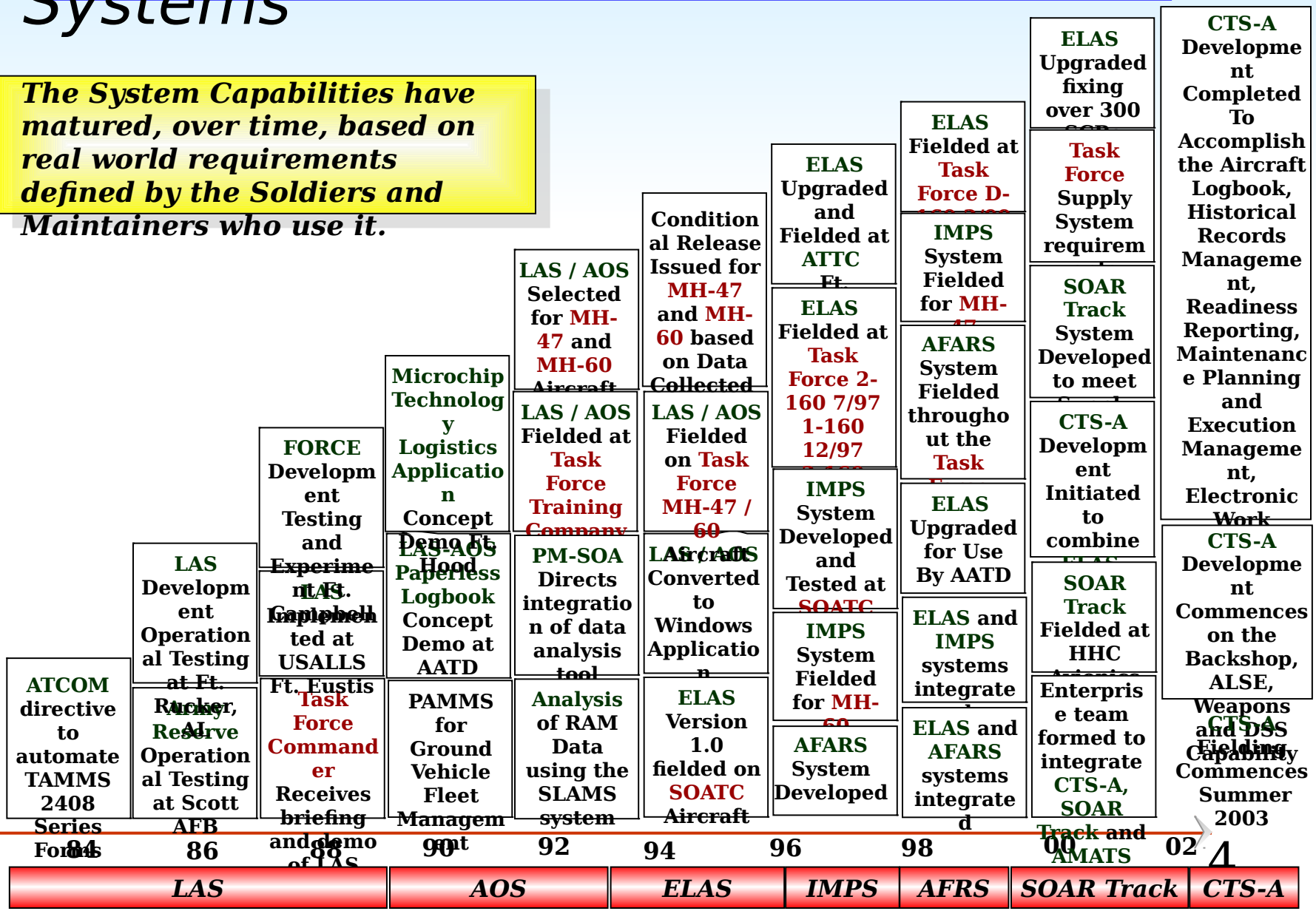
Compliant with the following:

FM 3-04.500 (FM 1-500)	***Army Aviation Maintenance Manual***
DA PAM 738-751	***Functional Users Manual for the Army Maintenance Management System – Aviation***
AR 700-138	***Army Logistics Readiness and Sustainability***
AR 95-1	***Flight Regulations***
FM1-300	***Flight Operations Procedures***
AR 710-2	***Inventory Management Supply Policy***
DA PAM 710-2-2	***Supply Support Activity Procedures***
AR 25 Series	***Regulations for Army Information Management***

Enable Seamless Transition to GCSS-A

History of Maintenance and Logistics Systems

The System Capabilities have matured, over time, based on real world requirements defined by the Soldiers and Maintainers who use it.



ELAS was Implemented in 1994 - 1996

The Paperless Aircraft Logbook was implemented to automate the tasks associated maintaining a paper logbook and reporting logbook information.

ELAS Onboard Paperless Logbook

- Flight Records 2408-12
- Maintenance 2408-13, 2408-14
- Servicing Requirements
- Computer Generated / Scheduled Maintenance 2408-18

ELAS was Implemented in 1994 - 1996

Quality Control functionality was implemented to automate the aircraft historical records, configuration management and data reporting.

ELAS Onboard
Paperless Logbook
- Flight Records 2408-12
- Maintenance 2408-13, 2408-14
- Servicing Requirements
- Computer Generated / Scheduled Maintenance 2408-18

ELAS
Quality Control
- Historical Records
- Aircraft Configuration
- DA Form 2410 Reporting
- Warranty Management

ELAS was Implemented in 1994 - 1996

Production Control functionality was implemented to provide direct insight into aircraft status, plan maintenance and report aircraft readiness information.

ELAS Onboard
Paperless Logbook
- Flight Records 2408-12
- Maintenance 2408-13, 2408-14
- Servicing Requirements
- Computer Generated / Scheduled Maintenance 2408-18

ELAS
Quality Control
- Historical Records
- Aircraft Configuration
- DA Form 2410 Reporting
- Warranty Management

ELAS
Production Control
- Daily Status Report
- 1352 Reporting
- Maintenance Planning
- Maintenance Oversight

IMPS was Implemented in 1998

The IMPS system automated the Phase Team functionality, providing the tools to accomplish more thorough phase inspections, quicker and cheaper.

ELAS Onboard Paperless Logbook
- Flight Records 2408-12
- Maintenance 2408-13, 2408-14
- Servicing Requirements
- Computer Generated / Scheduled 2408-18

ELAS Quality Control
- Historical Records
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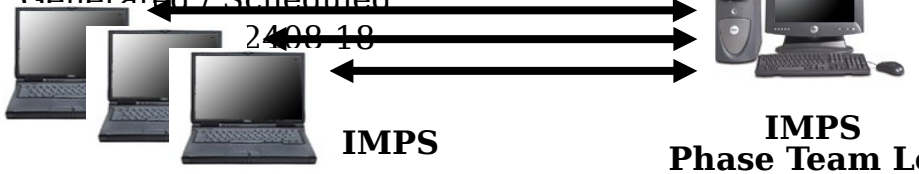
ELAS Production Control
- Daily Status Report
- 1352 Reporting
- Maintenance Planning
- Maintenance Oversight



IMPS Phase Team Work Station
- Import Data
- Assign Tasks to Personnel
- Schedule Personnel
- Complete Inspections
- Record Faults and Corrective Actions
- Export Data
- Requests Parts

IMPS Phase Team Leader Station
- Import Data
- Initiate Phase
- Assign Phase Tasks to PTWS
- Manage Task Completion
- Review Inspection Status
- Close Out Phase
- Export Data

AFRS was Implemented in 1999

The AFRS system was implemented to automate the management of Flight Crew records, qualifications, certifications, assignments, capabilities and proficiency

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ELAS Quality Control
- Historical Records
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- Warranty Management

ELAS Production Control
- Daily Status Report
- 1352 Reporting
- Maintenance Planning
- Maintenance Oversight

AFRS Flight Operations
- Aviator Flight Records
- Monitor Qualifications
- Monitor Currency
- Monitor Certifications
- Monitor Experience
- Ensure Availability

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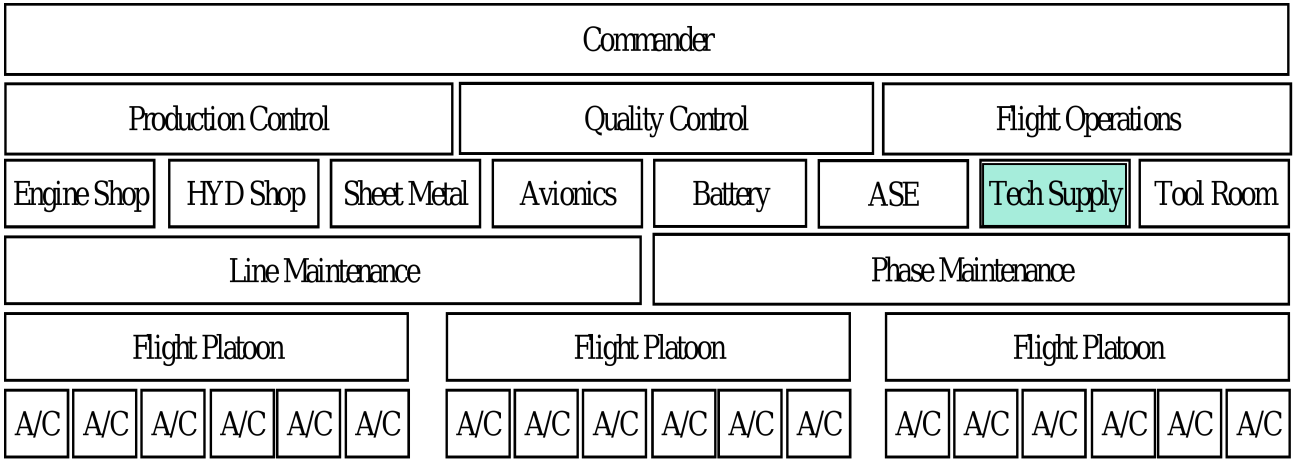
History of Maintenance and Logistics Systems

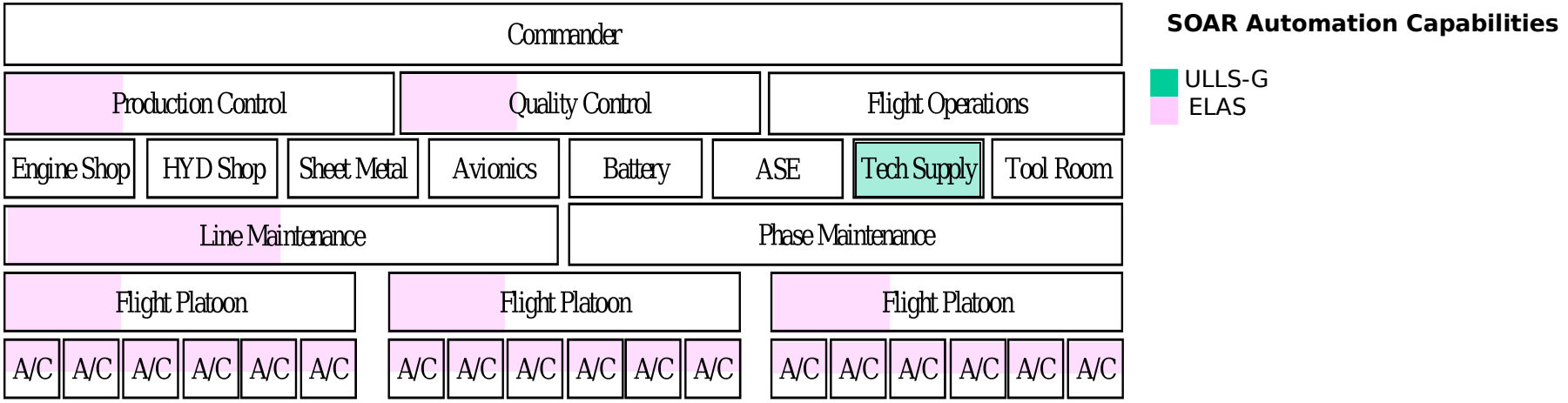
When the maintenance and logistics systems automation project started in 1994 the Regiment had very limited automation capabilities at the Unit level. ULLS-G was in place to support supply management.



Fielding of the MH-47E and MH-60K mandates the implementation of a maintenance and logistics system designed to manage closed loop and peculiar assets.

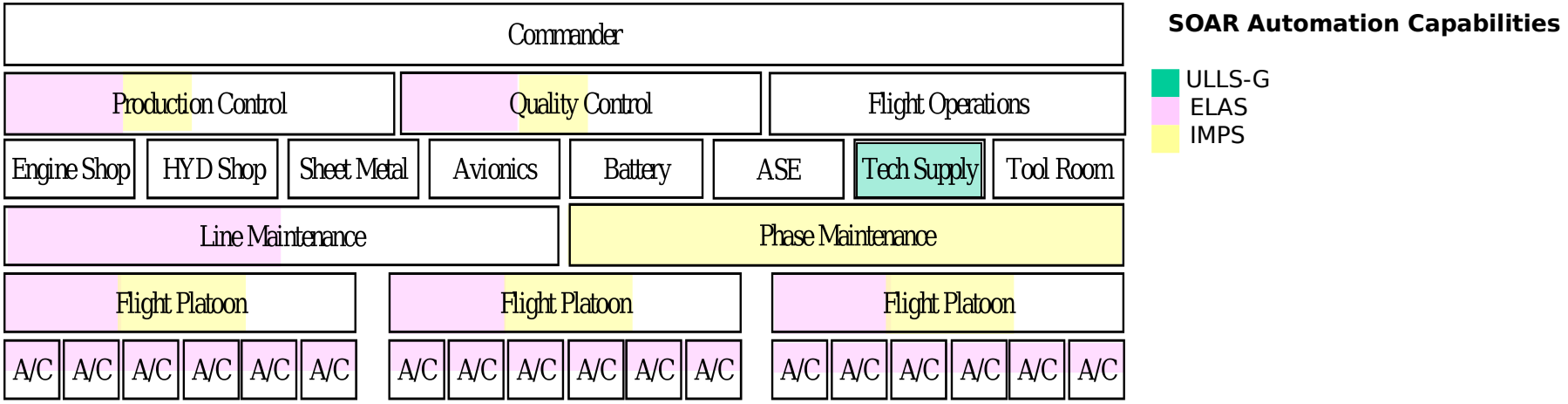
History of Maintenance and Logistics Systems

The ELAS Logbook, Historical Records, Configuration Management, Readiness and Data Reporting was implemented from 1994 through 1996.



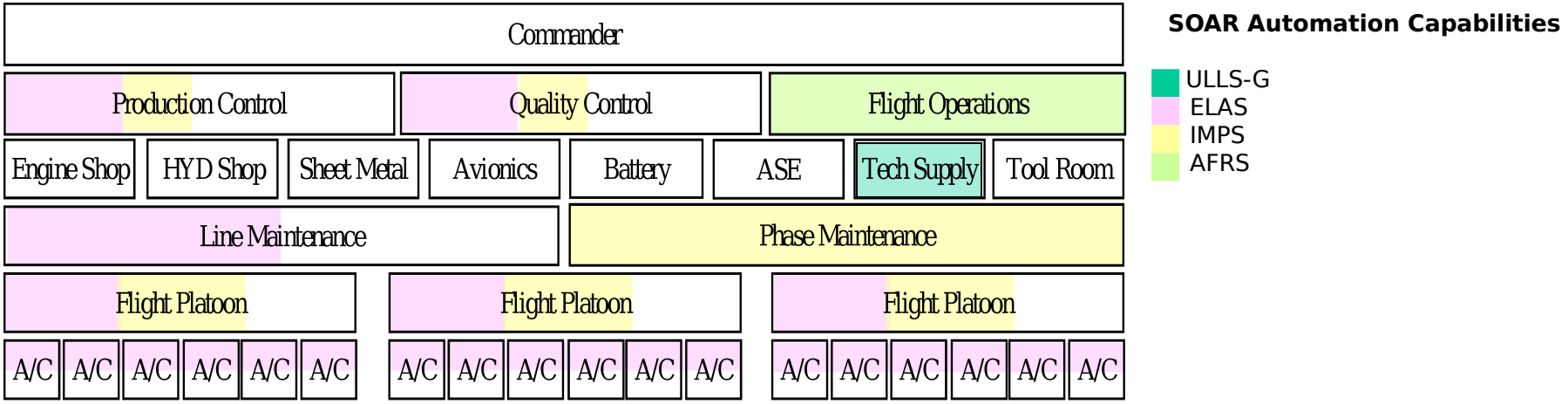
History of Maintenance and Logistics Systems

The automated phase maintenance management tool, IMPS, was implemented in 1998.



History of Maintenance and Logistics Systems

The Automated Flight Records System (AFRS) was implemented in 2000 to manage flight crew member records.



Today, we have provided critical automation components to many areas throughout the Regiment.

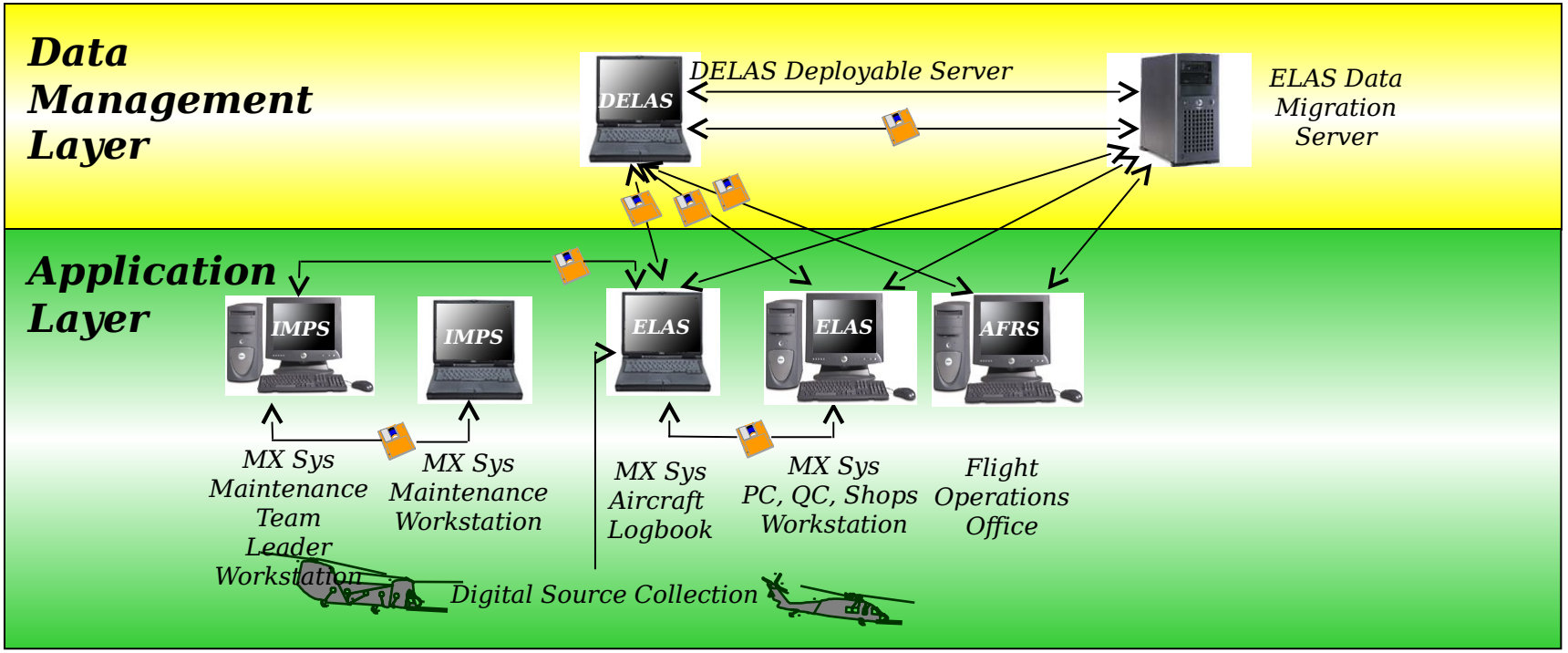
Current System Architecture - ELAS, IMPS, AFRS

Stand Alone Application Architecture enables a fully deployable solu

Currently supporting 1000+ Users / 350+ Computers / 140+ Aircraft

Operated successfully, realizing great benefits, since 1996

Hundreds of thousands of flight and maintenance events have been r



Currently Fielded Technology

ELAS Onboard Paperless Logbook
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- Maintenance 2408-13, 2408-14
- Servicing Requirements
- Computer Generated / Scheduled Maintenance 2408-18

ELAS Quality Control
- Historical Records
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ELAS Production Control
- Daily Status Report
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- Work Orders

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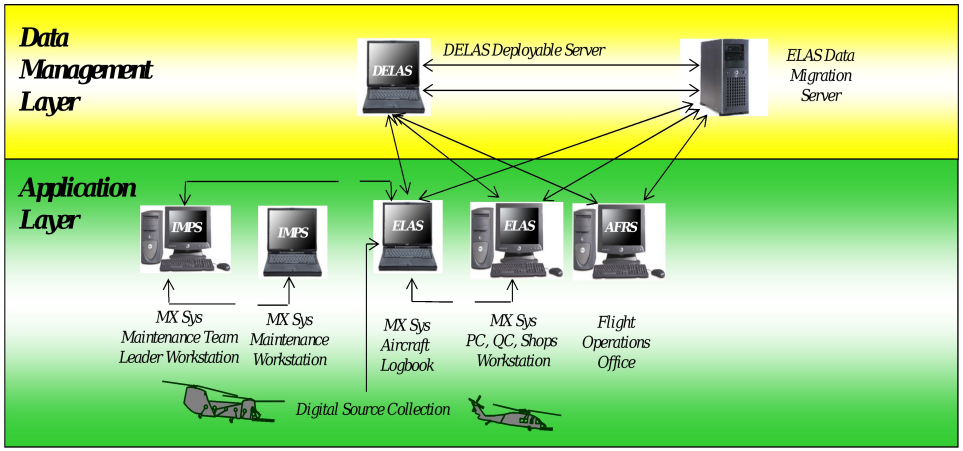
Example of Benefits

- **Saves significant time maintaining aircraft logbook**
- **Saves numerous manhours performing quality assurance and maintaining historical records**
- **Saves numerous manhours performing maintenance management and reporting readiness**
- **Saves numerous manhours researching historical data and status**
- **Saves significant time performing Phase Inspections**
- **Saves numerous manhours maintaining Crew Records.**



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Special Operations Aviation Regiment (A)

CURRENT INITIATIVES
CTS-A

CTS-A Enterprise System for Maintenance and Logistics

Configurable Integrated Software and Hardware

Robust Multi-Tier Architecture

Software

Utilities

Enhanced Paperless Aircraft Logbook

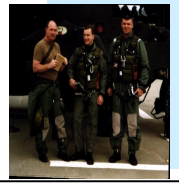
- *Collects Operational and Maintenance data using Laptop computer*
- *One – Time Data Entry, Multiple Use Data*
- *Downloads Data from Aircraft Data Bus / FDR*
- *Provide Paperless Record Keeping*
- *Automates the 2408-12, -13, -14, -18, -4, -16 in Deployed Mode*

Enhanced Aircraft / Component Maintenance

- *Automates TAMMS-A*
- *Automatically Computes Maintenance Requirements and Creates Write-ups*
- *Reduces Paperwork and Eliminates Calculation Errors*
- *Manages Aircraft and Component Configuration Specifications*
- *Provides Forecasting Capability to Effectively Plan Maintenance*
- *Manages Phase Inspections and Work Task Distribution*
- *Manages Back Shop and Work Order Based Maintenance*
- *Serves as Forecasting Engine for Supply Chain Management*

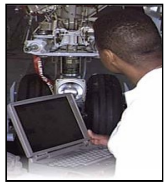
New Supply Chain Management Capabilities

- *Provides 100% Asset Tracking Capability*
- *Automates Unit Level Supply Processes (ULLS-A) with new technologies*
- *Manages the Requisition Resolution Processes*
- *Manages Stock Room Issues, Returns, Loans and Borrows*
- *Manages Repair Orders and Asset Transfers between Units*
- *Utilizes Configurable Work Flow to Maximize Supply Chain Efficiency*



Enhanced Aviator Records Management

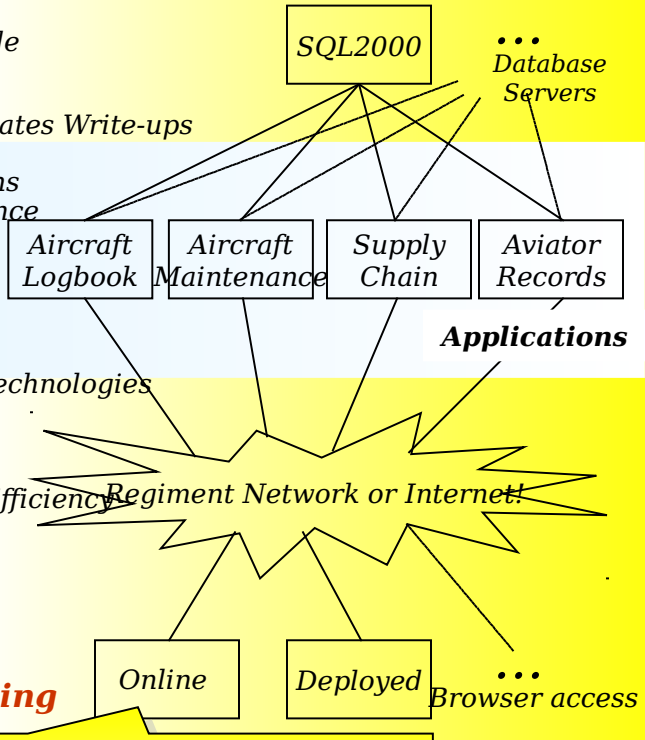
- *Manages all Army Aviator Record Keeping Requirements*
- *Produces the 759 and 759-1 Output Products*
- *Ensures that Adequate Currency is maintained*
- *Is Automatically Populated from Aircraft Logbook Entries*

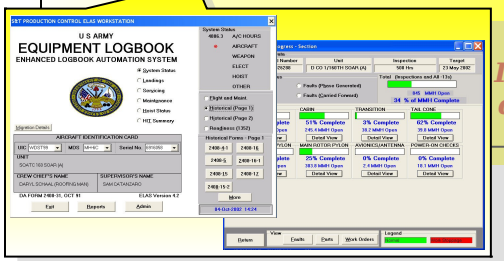


New Decision Support, Ad Hoc Query and Reporting

- *Reliability, Readiness, Maintainability and other Performance Metrics*
- *Rich set of standard reports and user configurable reports via Crystal Reports or other third party reporting tools*
- *Graphical ad-hoc query utilities simplify data inquiry*
- *Produces All Aircraft Logbook Flight Record and Historical Record Forms*

Three Tier architecture enables SOAMSS and SOAR Track access via LAN , WAN or deployed data migration

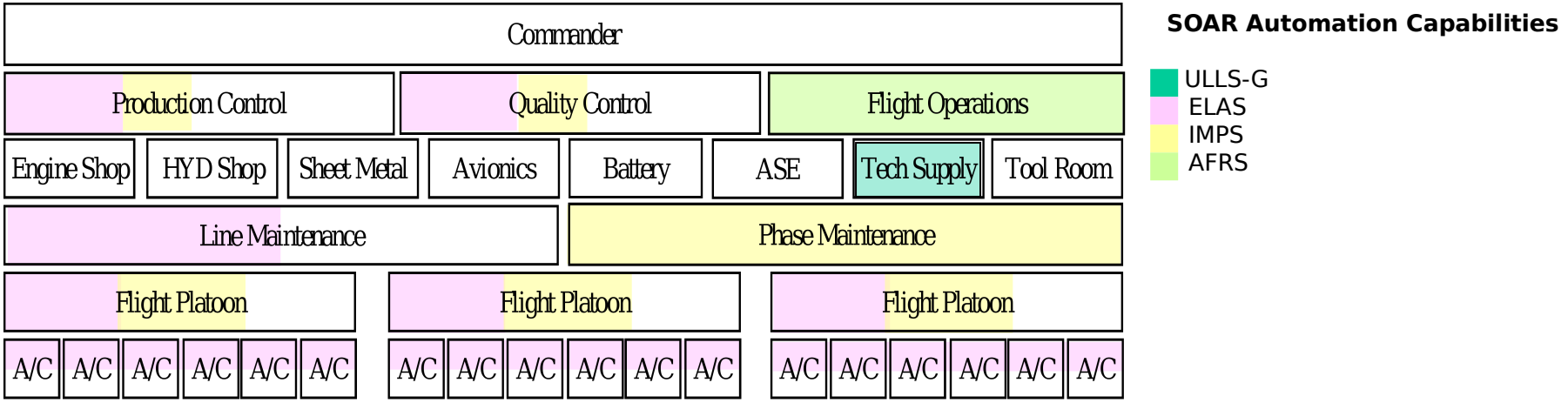




Intuitive displays

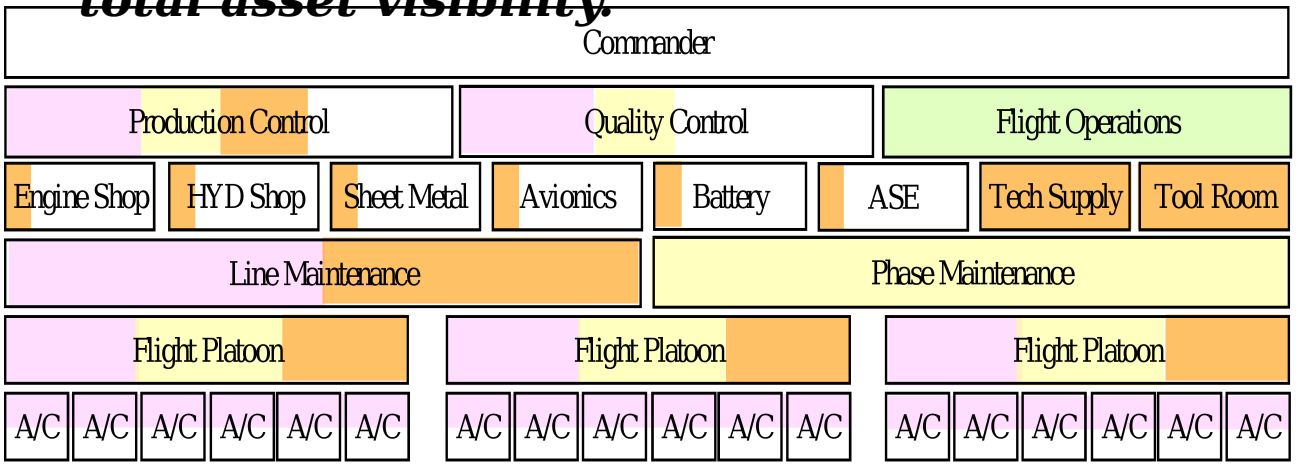
Current Initiatives

The CTS-A Core Modules (also known as SOAMSS) are currently being implemented to replace ELAS, IMPS and AFRS. Additional CTS-A modules will be implemented to complete the enterprise module set.



SOAR Track Supply System

The CTS-A Supply Chain Module (also known as SOAR Track) is being developed (currently 80% complete) to automate the Regiment Supply Chain, from requisition to order fulfillment, from inventory level management to total asset visibility.

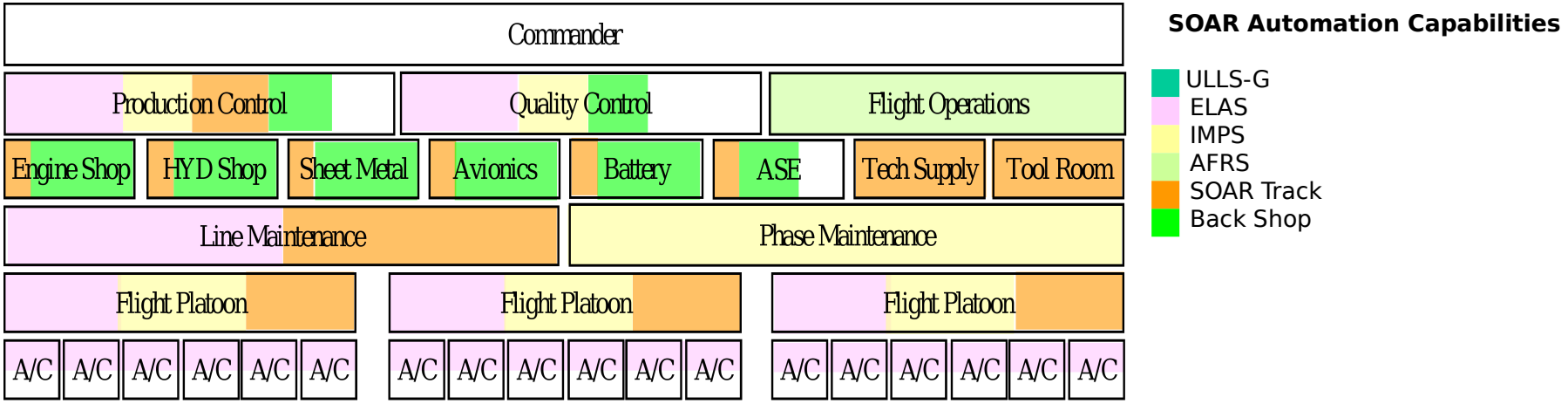


SOAR Automation Capabilities

- ULLS-G
- ELAS
- IMPS
- AFRS
- SOAR Track

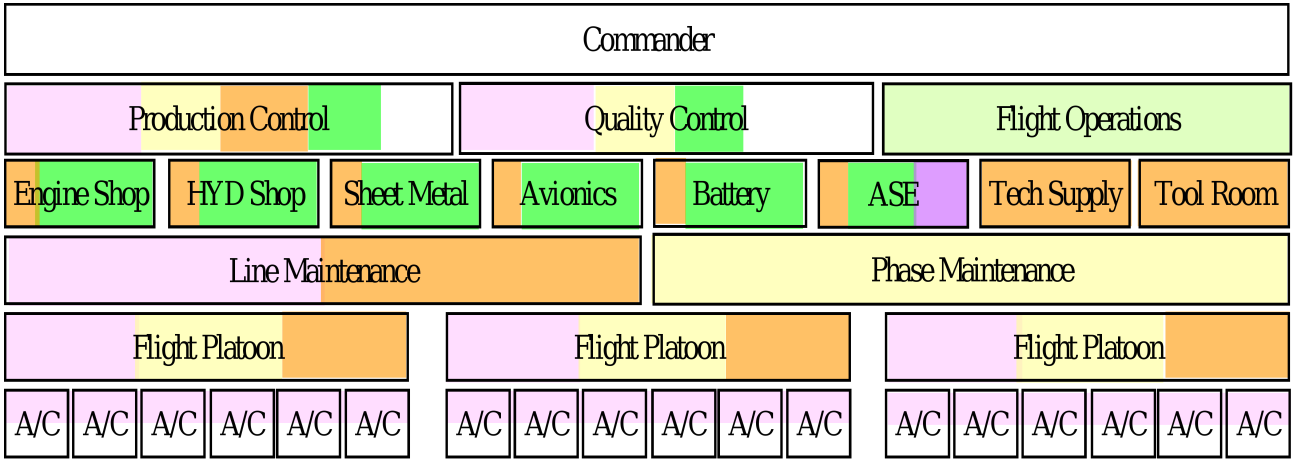
Back Shop / Work Order

The CTS-A Back Shop / Work Order module will provide repair shops with the management tools required to reduce component repair turn-around time.



Aviation Life Support Equipment / Survivability Equipment

The Aviation Life Support Equipment (ALSE) and Aviation Survivability Equipment (ASE) will be tracked and maintained with the ALSE / ASE module.

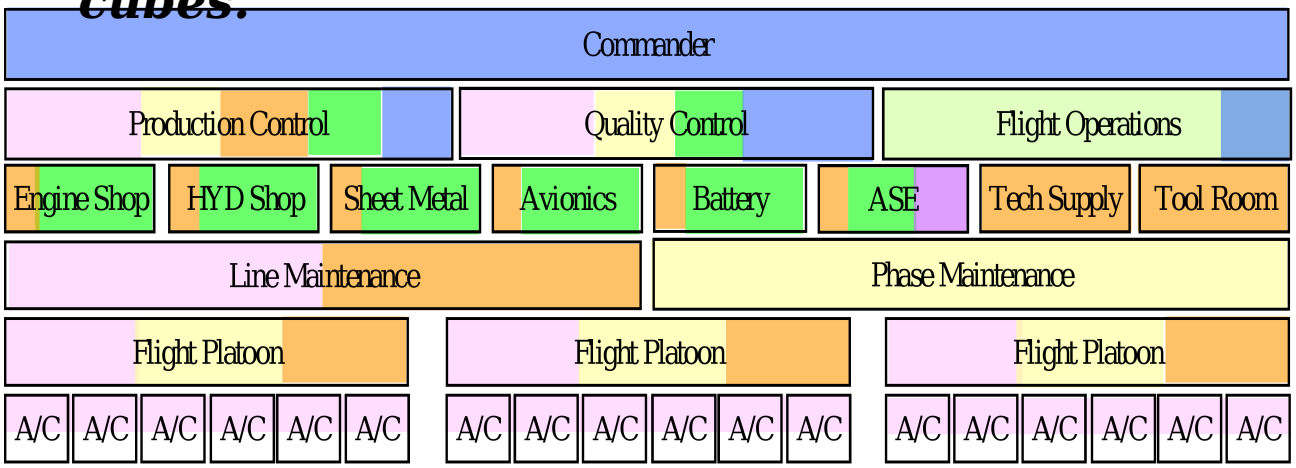


SOAR Automation Capabilities

- ULLS-G
- ELAS
- IMPS
- AFRS
- SOAR Track
- Back Shop
- ALSE / ASE

Enterprise Decision Support System

The Decision Support System (DSS) module provides data warehouse access to retrieve readiness, reliability, maintainability and other performance metrics, as well as formatted reports and ad-hoc analysis through OLAP cubes.

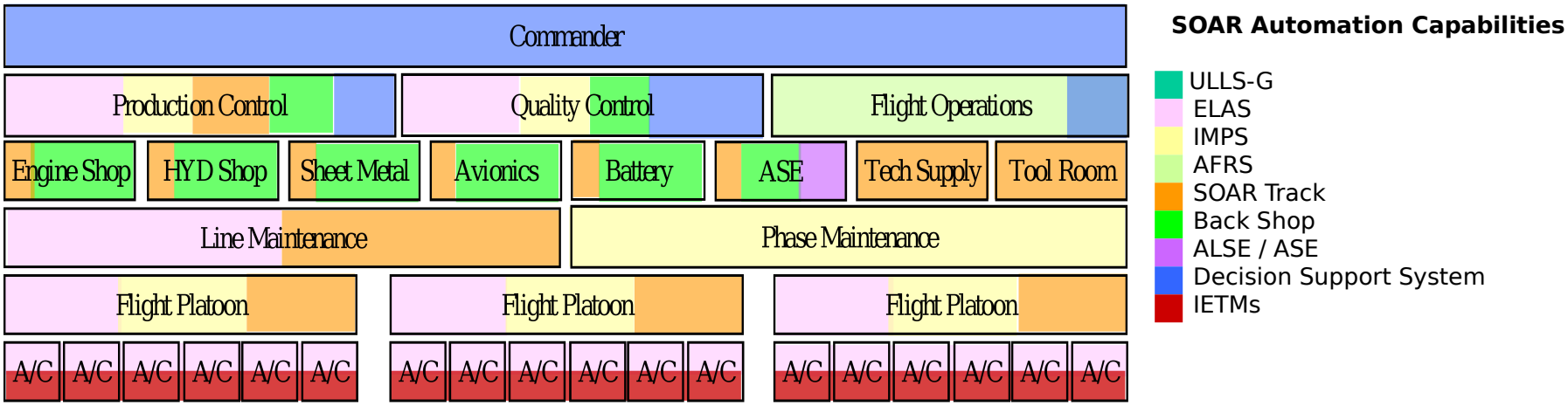


SOAR Automation Capabilities

- ULLS-G
- ELAS
- IMPS
- AFRS
- SOAR Track
- Back Shop / Work Order
- ALSE / ASE
- Decision Support System

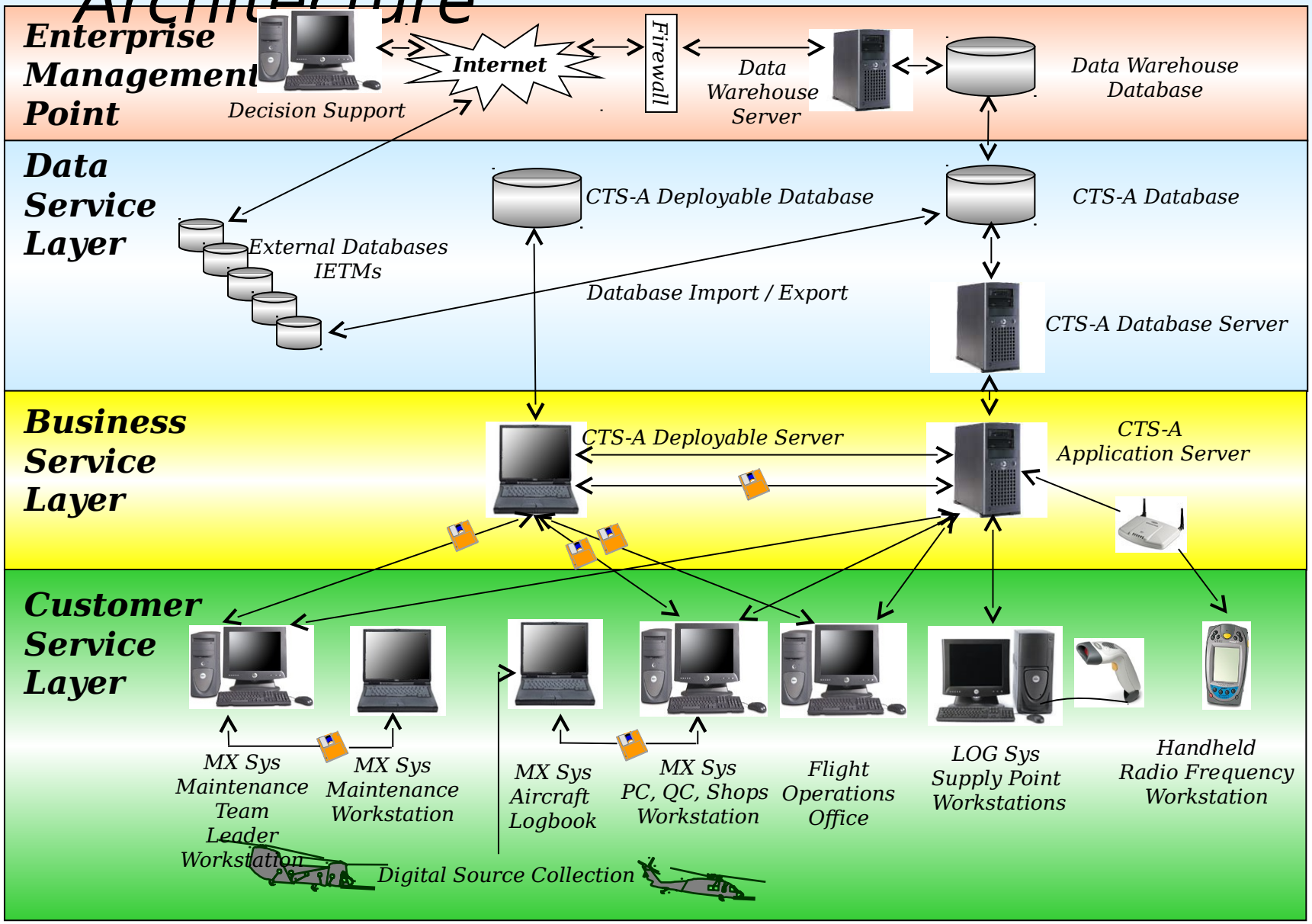
Interactive Electronic Technical Manuals - IETM

The Interactive Electronic Technical Manuals (IETMs) are currently being developed by the ARSOA Publications Office for seamless integration into the maintenance and logistics systems.



These related applications make up the Regiments Enterprise System model.

Enterprise System Architecture



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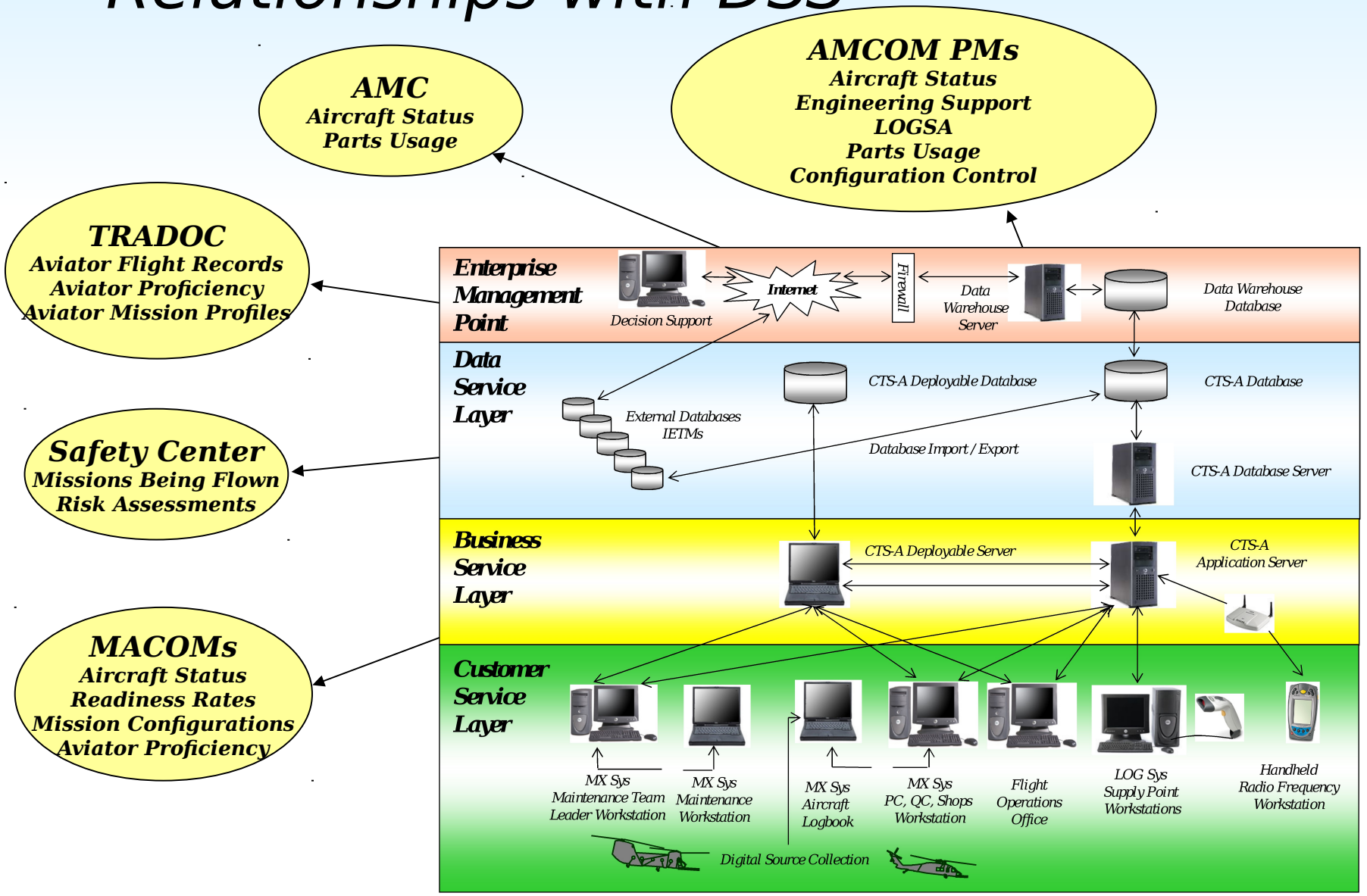
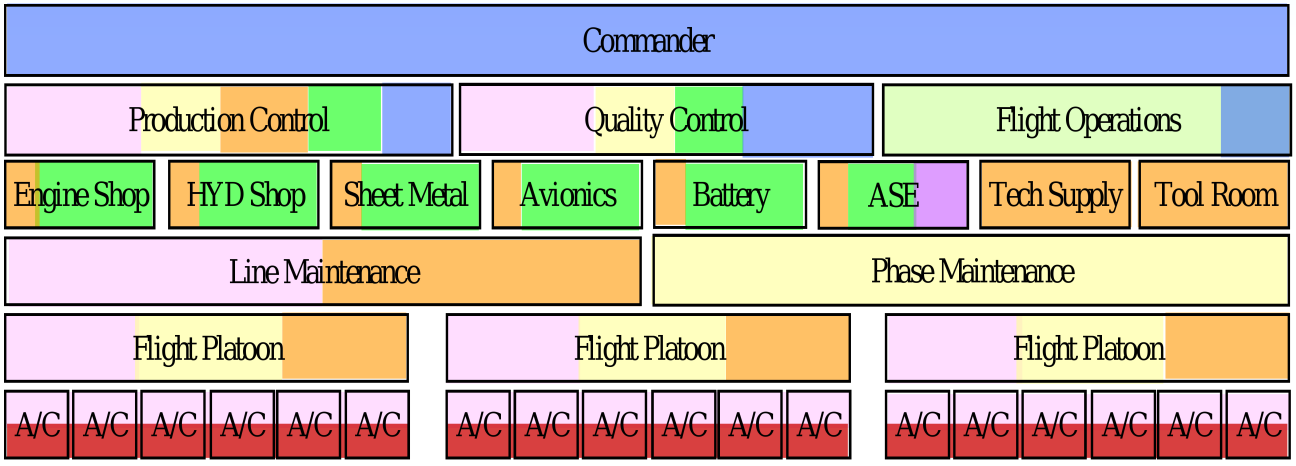
NEAR TERM INITIATIVES

Enhance Data Sharing Relationships with DSS



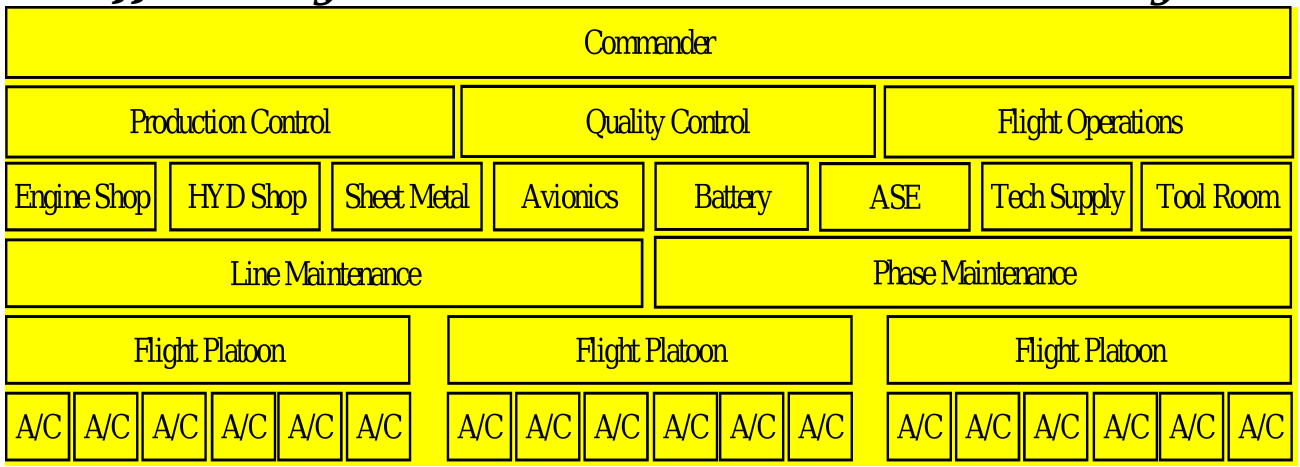
Near Term Initiatives

Convert the collection of CTS-A application modules …



Near Term Initiatives

into CTS-A by seamlessly integrating all functionality required to support fleet management and enterprise efficiency into one common transition system.



Continue to Enhance our CTS-A system to embody more efficient business processes and new technologies.

- ***AMATS – Aviation Maintenance Automated Tracking System***
- ***FDR – Flight Data Recorder***
- ***HUMS – Health Usage Monitoring System***
- ***FOQA – Flight Operations Quality Assurance***

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LONG TERM OPPORTUNITIES

Opportunities for Enhancements to CTS-A

War Fighter Driven Enhancements

Maintenance Module Enhancements

- *Multiple Simultaneous Configuration Specifications*
- *Aircraft Utilization Analysis Utilities*
- ***Finite Capacity Planning Utilities***
- *Work Sequencing and Balancing Utilities*
- *Work Package Normalization Utilities*
- ***Maintenance Personnel Qualification Management Utilities***

Supply Chain Optimization

- ***Optimum Stocking Level and Automatic Re-leveling***
- *Auto-Ordering and Optimized Vendor Selection*
- *Electronic Marketplace Integration*
- *On-Line Parts Ordering / Bid and Proposal Submission*

Document Management

- *Data type independence (SGML, XML, video, raster, etc)*
- *Consolidated configuration management of fleet and fleet tech data*
- *Browser-based view and red-line mark-up*
- *Access controlled by document, access privileges defined by applications*
- ***Document access integrated with CTS-A applications (e.g. tech data "enabled" job cards***

Data Warehousing and Analysis

- *OLAP cubes facilitate access to all CTS-A data structures*
- *Enables high level inquiry, analysis and EIS review of all CTS-A data*
- *Warehouse optimized for analysis separate from transactional data*
- *OLAP server pre-computes follow-up questions and intelligently caches results*
- *Web distribution based reliability, availability & maintainability*
- ***Component, assembly and fleet level analysis***
- *Continuous data sampling, analysis and review*

Portable Maintenance & Logistics Aids

- ***Facilitates real-time field, shop and warehouse information distribution and collection***
- ***Laptop, palmtop and wearable hardware configurations***
- *Optional barcode, 2D matrix symbology and digital camera integration*
- *Voice actuated access to standard browser-based applications*
- *RF, cellular or networked information transfer*

Continuous Product Improvement!

CTS-A Schedule

CTS-A Core Modules (SOAMSS) Internal Release	October 2003
CTS-A Core Modules Fielding Commencement	November 2003
CTS-A Core Modules Operational Certification	December 2003
CTS-A Version 1.0 External Release (Core Modules)	**January 2004**
AMATS Integration into CTS-A Core Modules	December 2003
CTS-A Decision Support System (DSS) Module + AMATS Internal Release	January 2004
CTS-A DSS Module + AMATS Fielding Commencement	February 2004
CTS-A DSS Module + AMATS Operational Certification	March 2004
CTS-A Version 1.1 External Release (All Previous Modules + DSS, AMATS)	**March 2004**
CTS-A Back Shop / Work Order Module Internal Release	April 2004
CTS-A Back Shop / Work Order Module Fielding Commencement	May 2004
CTS-A Back Shop / Work Order Module Operational Certification	June 2004
CTS-A Version 1.2 External Release (All Previous Modules + Back Shop / Work Order)	**June 2004**
CTS-A Supply Chain Module Internal Release	June 2004
CTS-A Supply Chain Module Fielding Commencement	July 2004
CTS-A Supply Chain Module Operational Certification	August 2004
CTS-A Version 2.0 External Release (All Previous Modules + Supply Chain Module)	**September 2004**
CTS-A Continuous Product Improvement Version Release Schedule	Every 6 Months
Includes minor modifications, enhancements and anomaly resolution	

High Priority Enhancements: ATM Module for Flight Crew Member Management

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Questions?